<u>REMARKS</u>

Claims 1-42 are currently pending in the subject application and are presently under consideration. Claims 1, 2, 4, 6-9, 11-15, 18, 21-25, 27, 28, 33, 37-40, and 42 have been amended as shown on pages 2-11 of the Reply. No new matter has been added.

Applicants' representative thanks the Examiner and Primary Examiner for the courtesies extended during the telephonic conference on November 29, 2006, with Francis Dunn. As addressed at the conference, there was discussion with regard to the Examiner's rejections under 35 U.S.C. §§ 102 and 103, as set forth in the Office Action, dated September 28, 2006. In particular, the Examiner provided clarification as to the footnotes contained in the Office Action, and there was discussion regarding a claim element: "width of a word."

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I.   **Rejection of Claims 27, 28, and 37 Under 35 U.S.C. § 112**

Claims 27, 28, and 37 stand rejected under 35 U.S.C. § 112 for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Withdrawal of this rejection is respectfully requested in light of amendments made to the subject claims.

II.   **Rejection of Claims 1-4, 7-9, 11-12, 19-22, 24-26, 33-36, 38-40, and 42 Under 35 U.S.C. § 102(b)**

Claims 1-4, 7-9, 11-12, 19-22, 24-26, 33-36, 38-40, and 42 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Zhao (US 6,487,301). It is requested that this rejection be withdrawn for at least the following reasons. Zhao does not disclose each and every element of the subject claims.

> For a prior art reference to anticipate, 35 U.S.C. §102 requires that "*each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (*quoting*

Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631,
2 USPQ2d 1051, 1053 (Fed. Cir. 1987)) (emphasis added).

Applicants' claimed invention relates to indexing and/or retrieval of a stored
electronic document by comparing a signature related to the document with a signature
related to an image of a printed document corresponding to the stored document. The
claimed subject matter can utilize word-level topological properties of the document to
generate a signature for that document, thereby enabling retrieval of the stored document
more efficiently and expeditiously. Signatures that identify stored documents can be
generated by obtaining data associated with the respective word-layouts within the
documents. For example, a location of a word or a portion of words, or a width of words,
within a document can be utilized to create a signature that robustly identifies a
document, as a probability of two disparate documents having a substantially similar
layout pattern is extremely small. Signatures that represent word-layouts of electronic
documents can then be compared with a signature of a later-captured image of a printed
document, and the stored electronic document whose signature most closely matches the
signature of the later-captured image can be retrieved, for example. Thus, indexing
and/or retrieval of documents can be facilitated without requiring an exorbitant amount of
computer resources or time.

In particular, independent claim 1 (and similarly independent claim 25, 39, and
40), as amended, recites: *a search component that locates a match to the physical
document, the search is performed over word-level topological properties of generated
images, the word-level topological properties comprise at least respective widths of
words on the physical document, and the generated images being images of at least a
portion of one or more electronic documents*. Zhao does not disclose this distinctive
feature of the claimed subject matter.

Rather, Zhao discloses techniques for incorporating authentication information
into digital representations of objects using the authentication information to authenticate
the objects. (*See* Abstract). Zhao discloses selecting semantic information from a digital
representation and using it to make a digest. (*See* col. 6, lns. 32-36). Semantic
information in a digital representation of an image of a document is the representations of

the alphanumeric characters in the document, where alphanumeric characters are understood to include representations of any kind of written characters or punctuation marks. (*See* col. 6, lns. 52-57). The form of the semantic information, for purposes of digital representation, will be a bit-map image, where the semantic information will be images of alphanumeric characters in the bit map; and the codes for alphanumeric characters, where the representation of the document can be expressed as code. (*See* col. 8, lns. 6-14). With regard to the former, a semantics reader will be an optical character reading (OCR) device, and with regard to the latter, the semantics reader will parse the document representation looking for character codes. (*See* col. 8, lns. 14-17).

However, unlike the claimed subject matter, Zhao fails to disclose locating a match to a physical document by searching generated images based on the width of words in the document and the width of words in the generated images. Rather, Zhao discloses identifying a document to an alphanumeric character level (*e.g.*, the letter of a word, or a number). (*See* col. 6, lns. 52-63; col. 9, lns. 46-54; col. 10, lns. 18-46; col. 13, lns. 49-62). Further, Zhao discloses semantic information in the form of types of fonts, colors, sizes, and style tags and style sheets in HTML, XML or SGML files. (*See* col. 12, lns. 20-23). Zhao also discloses examining a document to find confusing alphanumeric characters and making a character string of the confusing alphanumeric characters. (*See* col. 4, lns. 39-47). Again, this is still examining a document on an alphanumeric character level, as opposed a word level, which can utilize significant resources when a storage system has many documents. Moreover, the character string of confusing alphanumeric characters may not represent a word, and the width of the character string of confusing alphanumeric characters is not used to locate a match to a document, but rather the alphanumeric characters in the character string are used to identify a document. (*See* col. 4, lns. 47-54) ("The order of the confusing characters in the character string is determined by the order of the confusing characters in the first digital document.")

In contrast, the claimed subject matter can locate a match to a physical document by searching word-level topological properties, such as the respective *widths of words* associated with the document. For example, the claimed subject matter can compare the respective widths of words in a plurality of generated images to the widths of words associated with the physical document, and if there is a match to one of the generated

images, the document can be retrieved from a data store. Examination of word-level topological properties, as opposed to utilizing OCR to index documents, can be beneficial as it can save time and efficiently utilize computer resources because it is not necessary to examine and determine each alphanumeric character, as is done with OCR, in order to determine a match to and retrieve to a requested document.

Further, amended independent claim 24 (and similarly amended independent claim 42) recites: *generating a signature corresponding to at least a portion of the captured image, the signature is generated based at least in part upon word-layout within the captured image*. Zhao fails to disclose this distinctive aspect of the claimed subject matter.

Rather, as stated, Zhao relates to incorporating authentication information into digital representations of objects using the authentication information to authenticate the objects. (*See* Abstract). Zhao discloses utilizing semantic information, including images of alphanumeric characters in a bit map, obtained using OCR technology or codes associated with alphanumeric characters (*e.g.*, ASCII), for purposes of authenticating documents, such as checks and other secure instruments. (*See* col. 8, lns. 6-21; col. 10, lns. 55-57). However, unlike the claimed subject matter, Zhao fails to disclose generating a signature, which corresponds to a portion of a captured image, based on the word layout within the captured image. Instead, Zhao focuses on examining the document at an alphanumeric character level, which can require a significant amount of time and computer resources in order to index and retrieve documents. (*See* col. 8, lns. 6-21).

In contrast, the claimed subject matter can generate a signature corresponding to a portion of a captured image associated with a document based in part on the *word layout within the captured image*. For example, the claimed subject matter can generate a signature that can correspond to the layout of a portion of a captured image, such as a paragraph or the width of words within the captured image. The signature can be utilized to index and/or retrieve a document, as the word layout of a captured image can be compared to the respective word layouts of generated images to determine which generated image matches or corresponds to the captured image associated with the document requested.

Furthermore, amended independent claim 33 (and similarly independent claim 38) recites: ***means for retrieving the electronic document, the means based at least in part upon comparing location of respective words and width of respective words within the captured image to the location of respective words and width of respective words within the generated image***. Zhao fails to disclose this distinctive aspect of the claimed subject matter.

For the reasons stated, *supra*, Zhao fails to disclose retrieving an electronic document based on comparing the width of respective words within a captured image to the width of respective words within a generated image. Further, Zhao is silent regarding retrieving an electronic document based on comparing the location of respective words within a captured image to the location of respective words within a generated image.

Rather, Zhao discloses utilizing OCR techniques, or parsing a document looking for character codes, to determine alphanumeric characters in a document to authenticate documents. (*See* col. 8, lns. 14-17). Further, Zhao discloses utilizing the presentation of information, such as colors, fonts, as well as metadata to authenticate documents. (*See* col. 12, 18-32).

In contrast, the claimed subject matter can retrieve an electronic document based in part on comparing the ***location of respective words and the width of respective words*** within a generated image to that of a captured image associated with an electronic document. For example, the claimed subject matter can determine and compare the X-Y location coordinates of a word in a captured image associated with an electronic document to that of generated images, and can index and/or retrieve an electronic document based on the location of a word or words in the compared images. Further, the claimed subject matter can also incorporate a word width coordinate (W) with regard to the words in the documents and/or images, and can compare the X-Y-W coordinates with regard to captured images and generated images in order to index and/or retrieve electronic documents as requested.

In view of at least the foregoing, it is readily apparent that Zhao fails to disclose each and every element of the claimed subject matter as recited in independent claims 1, 24, 25, 33, 38-40, and 42 (and associated claims 2-4, 7-9, 11, 12, 19-22, 26, 34-36). Accordingly, it is believed that the subject claims are in condition for allowance, and the

rejection should be withdrawn.

III.   Rejection of Claims 5, 6, and 10 Under 35 U.S.C. § 103(a)

Claims 5, 6, and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhao (US 6,487,301) in view of Ming Ye, *et al.* "Document Image Matching and Annotation Lifting", 2001 IEEE (hereinafter "Ming Ye, *et al.*"). This rejection should be withdrawn for at least the following reason. Zhao and Ming Ye, *et al.*, alone or in combination, do not teach or suggest each and every element of the subject claims. Claims 5, 6, and 10 depend from independent claim 1. Ming Ye, *et al.* fails to cure the aforementioned deficiencies of Zhao as to independent claim 1. Accordingly, this rejection should be withdrawn.

IV.   Rejection of Claims 13, 23, 27, 29, and 37 Under 35 U.S.C. § 103(a)

Claims 13, 23, 27, 29, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhao (US 6,487,301) in view of Shin-Ywan Wang, *et al.* "Block-Selection: A Method for Segmenting Page Image of Various Editing Styles", Canon Information Systems, 1995 IEEE (hereinafter "Shin-Ywan Wang, *et al.*"). This rejection should be withdrawn for at least the following reason. Zhao, and Ming Ye, *et al.*, alone or in combination, do not teach or suggest each and every element of the subject claims. Claims 13 and 23 depend from independent claim 1; claims 27 and 29 depend from independent claim 24; and claim 37 depends from independent claim 33. Ming Ye, *et al.* fails to cure the aforementioned deficiencies of Zhao as to independent claims 1, 24, and 33. Accordingly, this rejection should be withdrawn.

V.   Rejection of Claim 8 Under 35 U.S.C. § 103(a)

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhao (US 6,487,301) in view of Shin-Ywan Wang, *et al.* and further in view of Ming Ye, *et al.* This rejection should be withdrawn for at least the following reason. Zhao, Shin-Ywan Wang, *et al.*, and Ming Ye, *et al.*, alone or in combination, do not teach or suggest each and every element of claim 8. Claim 8 depends from independent claim 1. Shin-Ywan

Wang, *et al.* and Ming Ye, et al. fail to cure the aforementioned deficiencies of Zhao as to independent claim 1. Accordingly, this rejection should be withdrawn.

VI.   Rejection of Claims 14-18, and 30-32 Under 35 U.S.C. § 103(a)

Claims 14-18, and 30-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhao (US 6,487,301) in view of Bloomberg (US 5,181,255). This rejection should be withdrawn for at least the following reason. Zhao and Bloomberg, alone or in combination, do not teach or suggest each and every element of the subject claims. Claims 14-18 depend from independent claim 1; and claims 30-32 depend from independent claim 24. Bloomberg fails to cure the aforementioned deficiencies of Zhao as to independent claims 1 and 24. Accordingly, this rejection should be withdrawn.

II.   Rejection of Claim 41 Under 35 U.S.C. § 103(a)

Claim 41 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhao (US 6,487,301) in view of Bresler, *et al.* (US 2003/0152293). This rejection should be withdrawn for at least the following reason. Zhao and Bresler, *et al.*, alone or in combination, do not teach or suggest each and every element of the subject claims. Claim 41 contains limitations similar to independent claim 1. Bresler, *et al.* fails to cure the aforementioned deficiencies of Zhao as independent claim 1. Accordingly, this rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063[MSFTP504US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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